

TEST PROCEDURE FOR ATF LASER INTERLOCK SYSTEM

Test Procedure for ATF Laser Interlock System

1.3.5.1 Introduction

ATF Operating procedures require that laser interlock systems be checked on at least an annual basis. The tests may be carried out by ATF personnel. A minimum of two (2) persons are required to carry out this test procedure.

Notify the control room operator that an interlock test is being performed and request that it be logged in the daily control room logbook.

Date _____

Time testing begins _____ Test personnel _____

Reason for test _____

Turn off HV pulsing on the YAG laser power supplies

(2) .

IF SWITCH DOWN _____

IG OFF _____

ASTER OSC OFF. _____

1.3.5.2 Gun Hutch

1. Enter the Gun Hutch and observe that the SOR Latch LED is illuminated, if not, reset with the SOR key. Check that the control room emergency stop LED for the Gun Hutch is out. _____
2. Press the emergency stop located outside the Gun Hutch. Observe that the SOR Latch LED is out and the ES light is illuminated in the Gun Hutch _____
3. Observe that the control room emergency stop LED for the Gun Hutch is illuminated. _____
4. Reset the Emergency Stop button and observe that the ES LED in the Gun Hutch goes out. _____
5. Observe that the SOR Latch LED and the control room Emergency stop LED is illuminated _____

6. Reset the SOR Latch with the key and observe that the control room Emergency stop LED is out and the SOR LED in the Gun Hutch is illuminated. _____
7. Repeat steps 2 to 6 for the Emergency Stop button inside the Gun Hutch _____
8. Enter the Gun Hutch and close the door, observe the Door OK LED is illuminated. _____
9. Press the Start Search button, observe that the LED on the button box illuminates when the button is pressed. _____
10. Exit the room and close the door, press the Complete Search button and observe that the audible warning sounds and the strobe flashes for a minimum of 15 seconds. _____
11. Observe that the LED on the Complete Search button box illuminates when the button is pressed. _____
12. Observe that the Interlocked sign is illuminated. _____
13. Observe that the control room Gun Hutch secured LED is out. _____
14. Observe that at the end of the warning period the Gun Hutch Secured LED in the Gun Hutch and in the control room is illuminated. _____
15. Open the door and observe the following:
 - The Interlocked sign goes out. _____
 - The control room Gun Hutch secured LED goes out. _____
 - The secured LED in the Gun Hutch goes out. _____
 - The LED on the Complete Search button box goes out. _____
 - A beeping audible alarm in the Gun Hutch for 5 seconds. _____
 - A beeping audible alarm in the control room for 5 seconds. _____
 - While the door is open the Door OK LED is out. _____
16. Close the door normally used for entrance and close the fixed door, observe that the Door OK LED is illuminated. _____

- 17. Secure the area, open the fixed door and observe that the interlock drops out. _____
- 18. Secure the Gun Hutch and then press the emergency stop, observe that the interlocked sign goes out and the Secured LED goes out in the gun hutch. _____
- 19. Reset the emergency stop button and attempt to secure the room, observe the room does not secure. _____
- 20. Reset the SOR latch and attempt to secure the room, observe that the room does secure. _____
- 21. Press the Interlock Off button, which brings the system to its ground state and inhibits the audible alarm, and open the door, observe that the beeping audible alarm does not sound and the Interlocked sign goes out. _____
- 21a. Press the start search button and observe the LED stays on for no more than 60 seconds. _____
- 21b. Press the complete search button and observe that the interlock does not make. _____
- 21c. Secure the area and before the timeout (20 sec.), open the door, close the door and press the complete search button, observe that the interlock does not make. _____

1.3.5.3 YAG Room

- 22. Enter the YAG room and observe that the SOR Latch LED is illuminated, if not, reset with the SOR key. Check that the control room emergency stop LED for the YAG room is out. _____
- 23. Press the emergency stop located outside the YAG room. Observe that the SOR Latch LED is out and the ES light is illuminated in the YAG room. _____
- 24. Observe that the control room emergency stop LED for the YAG room is illuminated. _____
- 25. Reset the Emergency Stop button and observe that the ES LED in the YAG room goes out. _____
- 26. Observe that the SOR Latch LED and the control room Emergency stop LED is illuminated _____

- 27. Reset the SOR Latch with the key and observe that the control room Emergency stop LED is out and the SOR LED in the YAG room is illuminated. _____
- 28. Repeat steps 23 to 27 for the Emergency Stop button inside the Gun Hutch _____
- 28a. Press the Start Search button and observe that the LED stays on for no more than 60 sec. _____
- 28a. Press the Complete search button and observe that the interlock does not make. _____
- 29. Enter the YAG room and close the door, observe the Door OK LED is illuminated. _____
- 30. Press the Start Search button, observe that the LED on the button box illuminates when the button is pressed. _____
- 31. Exit the room and close the door, press the Complete Search button and observe that the audible warning sounds and the strobe flashes for a minimum of 15 seconds. _____
- 32. Observe that the LED on the Complete Search button box illuminates when the button is pressed. _____
- 33. Observe that the Interlocked sign is illuminated. _____
- 34. Observe that the control room YAG room Secured LED is on. _____
- 35. Observe that at the end of the warning period the YAG room Secured LED in the YAG room and in the control room is illuminated. _____
- 36. Open the door and observe the following:
 - The Interlocked sign goes out. _____
 - The control room YAG secured LED goes out. _____
 - The secured LED in the YAG room goes out. _____
 - The LED on the Complete Search button box goes out. _____
 - A beeping audible alarm in the YAG room for 5 seconds. _____
 - A beeping audible alarm in the control room for 5 seconds. _____

While the door is open the Door OK LED is out. _____

- 37. Close the door normally used for entrance and close the fixed door, observe that the Door OK LED is illuminated. _____
- 38. Secure the area, open each side of the fixed door and observe that the interlock drops out. _____

- 39. Secure the YAG room and then press an emergency stop, observe that the interlocked sign goes out and the Secured LED goes out in the YAG room. _____
- 40. Reset the emergency stop button and attempt to secure the room, observe the room does not secure. _____
- 41. Reset the SOR latch and attempt to secure the room, observe the room does secure. _____
- 42. Press the Interlock Off button and open the door, observe that the beeping audible alarm does not sound and the Interlocked sign goes out. (button outside and on interlock box) _____

- 43. Secure the YAG room and the Gun hutch. Observe that the YAG to Gun shutter ready indicator does not light until the Gun hutch warning sound stops. _____
- 44. Open the YAG to Gun shutter and the YAG Laser shutter, note that the YAG laser power indicator is illuminated. Break security in the Gun hutch and observe that the YAG to Gun shutter closes and the laser power indicator remains illuminated. _____
- 45. Connect the shutter control test cable to the YAG to Gun shutter solenoid, secure the Gun hutch and the YAG room. Open the YAG laser shutter and open the YAG to Gun shutter with the test box. Break security in the Gun hutch and observe that the laser power light goes out. _____
- 46. Close the YAG to Gun shutter with the test box and observe the laser power light illuminate. _____
- 47. Remove the test cable and re-connect the shutter cable. Secure the YAG room and open the YAG Laser shutter, note that the laser power light is illuminated. Break security for the

YAG room and observe that the YAG Laser shutter closes and that the YAG laser power light remains illuminated. _____

48. Connect the shutter test cable to the YAG laser shutter solenoid. Secure the YAG room and open YAG laser shutter with the test box. Note that the laser power light is illuminated. Break security for the YAG room and observe that the laser power indicator goes out. _____

Reset the Laser power with the SOR key and observe the Laser Power light is on. _____

49. Remove the test cable and re-connect the shutter cable. Secure the YAG room. Observe that the laser power indicator is illuminated. Press the control room Emergency stop and observe that the YAG Laser power indicator goes out. _____
50. Repeat step 49 except press the Gun hutch emergency stop and observe that the YAG Laser power indicator goes out. _____
51. Repeat step 49 except press the CO₂ main emergency stop and observe that the YAG Laser power indicator goes out. _____
52. Repeat step 49 except press the FEL emergency stop and observe that the YAG Laser power indicator goes out. _____
53. Repeat step 49 except press the EH emergency stop and observe that the YAG Laser power indicator goes out. _____
54. Secure the YAG room and CO₂ Main room, Open the YAG to CO₂ Main shutter and the YAG Laser shutter, note that the YAG laser power indicator is illuminated. Break security in the CO₂ main Room and observe that the YAG to CO₂ Main shutter closes and the YAG laser power indicator remains illuminated. _____
55. Connect the shutter test cable to the YAG to CO₂ main shutter solenoid. Secure the YAG room and the CO₂ main room, Open the YAG to CO₂ main shutter with the test box. Observe that the laser power indicator is illuminated. Break security in the CO₂ main room and observe the YAG laser power indicator goes out. _____
56. Remove the test cable and re-connect the shutter cable. Secure the YAG room, FEL room and EH room, Open the YAG to FEL shutter and the YAG Laser shutter, note that the YAG laser power indicator is illuminated. Break security in the FEL Room and observe that the YAG to FEL shutter closes and the YAG laser power indicator remains illuminated. _____

57. Secure the YAG room, FEL room and EH room, Open the YAG to FEL shutter and the YAG Laser shutter, note that the YAG laser power indicator is illuminated. Break security in the EH Room and observe that the YAG to FEL shutter closes and the YAG laser power indicator remains illuminated. _____
58. Connect the shutter test cable to the YAG to FEL shutter solenoid. Secure the YAG room, FEL room and the EH room, Open the YAG to FEL shutter with the test box. Observe that the laser power indicator is illuminated. Break security in the FEL room and observe the YAG laser power indicator goes out. _____
59. Secure the YAG room, FEL room and the EH room, Open the YAG to FEL shutter with the test box. Observe that the laser power indicator is illuminated. Break security in the EH room and observe the YAG laser power indicator goes out. _____
60. Remove the test box and re-connect the shutter solenoid cable. Secure the YAG room, after requesting the operator to turn on the laser power supplies observe that the two power supplies turn on and are pulsing. _____
61. Press the Emergency stop located outside the YAG room and observe that the two power supplies for the laser turn off. _____
Observe that the Master Osc. Turns off. _____
62. Reset the Emergency stop and observe that the power supplies and osc. remain off. _____
63. Reset the YAG SOR and observe that the power supplies do come on. _____
- 63a. Press the start search button and observe the LED stays on no more than 60 seconds. _____
64. Secure the Gun hutch, press the passage button for the Gun hutch then open the vestibule door and the Gun door, observe that the security for the Gun hutch drops out. _____
65. Secure the YAG room, press the passage button for the YAG room then open the vestibule door and the YAG door, observe that the YAG security drops out. _____
66. Secure the YAG room, press the passage button for the YAG room then open the Gun door and the YAG door, observe that the YAG security drops out. _____
67. Secure the YAG room, press the passage button for the YAG room then open the Laser Lab door and the YAG door, observe that the YAG security drops out. _____

- 68. Secure the Gun Hutch, press the passage button for the Gun hutch then open the Gun door and the YAG door, observe that the Gun security drops out. _____
- 69. Secure the Gun hutch, press the passage button for the Gun hutch then open the Laser Lab door and the Gun door, observe that the Gun security drops out. _____
- 70. Secure the Gun hutch , press the passage button for the Gun hutch, open the door, Observe that the time from when the button is pressed to the time that the interlock drops out is no more than 20 seconds. _____
- 71. Secure the YAG room , press the passage button for the YAG room, open the door, Observe that the time from when the button is pressed to the time that the interlock drops out is no more than 20 seconds. _____
- 72. Secure the Laser Lab, press the passage button for the Laser Lab room, open the door, Observe that the time from when the button is pressed to the time that the interlock drops out is no more than 20 seconds. _____
- 72a. Press the Complete search button and observe the interlock does not make. _____
- 72b. Secure the area and before the timeout open the door, close the door and press the complete search button, observe that the interlock does not make. _____

1.3.5.4 CO₂ Amplifier Room

- 73. Enter the CO₂ Amp room and observe that the SOR Latch LED is illuminated, if not, reset with the SOR key. Check that the control room emergency stop LED for the CO₂ Amp room is out. _____
- 74. Press the emergency stop located outside the CO₂ Amp room. Observe that the SOR Latch LED is out and the ES light is illuminated in the CO₂ Amp room. _____
- 75. Observe that the control room emergency stop LED for the CO₂ Amp room is illuminated. _____
- 76. Reset the Emergency Stop button and observe that the ES LED in the CO₂ Amp room goes out. _____
- 77. Observe that the SOR Latch LED and the control room Emergency stop LED is illuminated _____

- 78. Reset the SOR Latch with the key and observe that the control room Emergency stop LED is out and the SOR LED in the CO₂ Amp room is illuminated. _____
- 79. Repeat steps 73 to 78 for the Emergency Stop button inside the CO₂ Amp. Room. _____
- 79a. Press the start search button and observe that the LED stays on no more than 60 sec. _____
- 79b. Press the complete search and observe that the interlock does not make. _____
- 80. Enter the CO₂ Amp room and close the door, observe the Door OK LED is illuminated. _____
- 81. Press the Start Search button, observe that the LED on the button box illuminates when the button is pressed. _____
- 82. Exit the room and close the door, press the Complete Search button and observe that the audible warning sounds and the strobe flashes for a minimum of 15 seconds. _____
- 82. Observe that the LED on the Complete Search button box illuminates when the button is pressed. _____
- 83. Observe that the Interlocked sign is illuminated. _____
- 84. Observe that the control room CO₂ Amp room secured LED is out. _____
- 85. Observe that at the end of the warning period the CO₂ Amp room Secured LED in the CO₂ Amp room and in the control room are illuminated. _____
- 87. Open the door and observe the following:

The Interlocked sign goes out. _____

The control room CO₂ Amp secured LED goes out. _____

The secured LED in the CO₂ Amp room goes out. _____

The LED on the Complete Search button box goes out. _____

A beeping audible alarm in the CO₂ Amp room for 5 seconds. _____

A beeping audible alarm in the control room for 5 seconds. _____

- 88. Close the CO₂ Main to CO₂ Amp. Door, the Maintenance door and the CO₂ Amp. Exit door and observe that the Door OK LED is illuminated. _____
- 89. Secure the area and open each door one at a time and observe that the interlock drops out. _____

- 90. Secure the CO₂ Amp. room and then press an emergency stop, observe that the interlocked sign goes out and the Secured LED goes out in the CO₂ Amp. room. _____
- 91. Reset the emergency stop button and attempt to secure the room, observe the room does not secure. _____
- 92. Reset the SOR latch and attempt to secure the room, observe the room does secure. _____
- 93. Press the Interlock Off button and open the door, observe that the beeping audible alarm does not sound and the Interlocked sign goes out. _____
- 94. Secure the CO₂ Amp. room, press the passage button for the CO₂ Amp., open the door, Observe that the time from when the button is pressed to the time that the interlock drops out is no more than 20 seconds. _____
- 94a. Secure the CO₂ Amp and CO₂ Main areas and press the passage button to the CO₂ Amp. observe that the CO₂ Osc. shutter and the YAG to CO₂ main shutter closes. _____

1.3.5.5 CO₂ Main Room

Red Tag CO₂ Laser Power Supplies before performing the following tests.

- 95. Enter the CO₂ Main room and observe that the SOR Latch LED is illuminated, if not, reset with the SOR key. Check that the control room emergency stop LED for the CO₂ Main room is out. _____

- 96. Press the emergency stop located outside the CO₂ Main room. Observe that the SOR Latch LED is out and the ES light is illuminated in the CO₂ Main room. _____
- 97. Observe that the control room emergency stop LED for the CO₂ Main room is illuminated. _____
- 98. Reset the Emergency Stop button and observe that the ES LED in the CO₂ Main room goes out. _____
- 99. Observe that the SOR Latch LED and the control room Emergency stop LED is illuminated _____
- 100. Reset the SOR Latch with the key and observe that the control room Emergency stop LED is out and the SOR LED in the CO₂ Main room is illuminated. _____
- 101. Repeat steps 96 to 100 for the Emergency Stop button inside the CO₂ Main Room. _____
- 101a. Press the start search button and observe that the LED stays on no more than 60 sec. _____
- 101b. Press the complete search and observe that the interlock does not make. _____
- 102. Enter the CO₂ Main room and close the door, observe the Door OK LED is illuminated. _____
- 103. Press the Start Search button, observe that the LED on the button box illuminates when the button is pressed. _____
- 104. Exit the room through the CO₂ Main to vestibule door and close the door, press the Complete Search button and observe that the audible warning sounds and the strobe flashes for a minimum of 15 seconds. _____
- 104. Observe that the LED on the Complete Search button box illuminates when the button is pressed. _____
- 105. Observe that the Interlocked sign is illuminated. _____
- 106. Observe that the control room CO₂ Main room secured LED is out. _____

107. Observe that at the end of the warning period the CO₂ Main room Secured LED in the CO₂ Main room and in the control room is illuminated. _____
108. Open the door and observe the following:
- The Interlocked sign goes out. _____
 - The control room CO₂ Main secured LED goes out. _____
 - The secured LED in the CO₂ Main room goes out. _____
 - The LED on the Complete Search button box goes out. _____
 - A beeping audible alarm in the CO₂ Main room for 5 seconds. _____
 - A beeping audible alarm in the control room for 5 seconds. _____
109. Close the CO₂ Main to CO₂ Amp. Door, the Maintenance door and the CO₂ Main to Vestibule door is closed observe that the Door OK LED is illuminated. _____
110. Secure the area open each door one at a time and observe that the interlock drops out. _____

112. Secure the CO₂ Main room and then press an emergency stop, observe that the interlocked sign goes out and the Secured LED goes out in the CO₂ Main. room. _____
113. Reset the emergency stop button and attempt to secure the room, observe the room does not secure. _____
114. Reset the SOR latch and attempt to secure the room, observe the room does secure. _____
115. Press the Interlock Off button and open the door, observe that the beeping audible alarm not sound and the Interlocked sign goes out. _____
116. Secure the CO₂ Main room, press the passage button for the Co₂ Main to CO₂ Amp door, open the door and, Observe that the time from when the button is pressed to the time that the interlock drops out is no more than 20 seconds. _____

117. Secure the CO₂ Main room, press the passage button for the CO₂ Main to Vestibule door, open the door and, Observe that the time from when the button is pressed to the time that the interlock drops out is no more than 20 seconds. _____
118. Secure the CO₂ Main room and the EH. Observe that the CO₂ Laser shutter ready indicator does not light until the CO₂ Main warning sound stops. _____
119. Open the CO₂ Main to EH shutter and the CO₂ Laser shutter, note that the CO₂ laser power indicator is illuminated. Break security in the EH and observe that the CO₂ Main to EH shutter closes and the laser power indicator remains illuminated. _____
120. Connect the shutter control test cable to the CO₂ Main to EH shutter solenoid, secure the CO₂ Main room and the EH. Open the CO₂ laser shutter and open the CO₂ to EH shutter with the test box. Break security in the EH and observe that the laser power light goes out. _____
121. Close the CO₂ Main to EH shutter with the test box and observe the laser power light illuminate. _____
122. Remove the test cable and re-connect the shutter cable. Secure the CO₂ Main room and open the CO₂ Laser shutter, note that the laser power light is illuminated. Break security for the CO₂ Main room and observe that the CO₂ Laser shutter closes and that the CO₂ laser power light remains illuminated. _____
123. Connect the shutter test cable to the CO₂ laser shutter solenoid. Secure the CO₂ Main room and open CO₂ laser shutter with the test box. Note that the laser power light is illuminated. Break security for the CO₂ Main room and observe that the laser power indicator goes out. _____
124. Remove the test cable and re connect the shutter cable. Secure the CO₂ Main room. Observe that the laser power indicator is illuminated. Press the control room Emergency stop and observe that the CO₂ Laser power indicator goes out. _____
125. Repeat step 124 except press the CO₂ Main emergency stop and observe that the CO₂ Laser power indicator goes out. _____
126. Repeat step 124 except press the EH emergency stop and observe that the CO₂ Laser power indicator goes out. _____
127. Remove the Red tag from the CO₂ laser power supplies. Secure the CO₂ Main room, after requesting the operator to turn on the laser power supplies observe that all three power supplies turn on. _____

- 128. Press the Emergency stop located outside the CO₂ Main room and observe that all three power supplies for the laser turn off. _____
- 129. Reset the Emergency stop and observe that the power supplies remain off. _____
- 130. Reset the CO₂ Main SOR and observe that the power supplies do not come on. _____

1.3.5.6 FEL Room

- 131. Enter the FEL Room and observe that the SOR Latch LED is illuminated, if not, reset with the SOR key. Check that the control room emergency stop LED for the FEL Room is out. _____
- 132. Press the emergency stop located outside the FEL Room. Observe that the SOR Latch LED is out and the ES light is illuminated in the FEL Room. _____
- 133. Observe that the control room emergency stop LED for the FEL Room is illuminated. _____
- 134. Reset the Emergency Stop button and observe that the ES LED in the FEL Room goes out. _____
- 135. Observe that the SOR Latch LED and the control room Emergency stop LED is illuminated _____
- 136. Reset the SOR Latch with the key and observe that the control room Emergency stop LED is out and the SOR LED in the FEL Room is illuminated. _____
- 137. Repeat steps 2 to 6 for the Emergency Stop button inside the FEL Room. _____
- 137a. Press the start search button and observe that the LED stays on no more than 60 sec. _____
- 137b. Press the complete search and observe that the interlock does not make. _____
- 138. Enter the FEL Room and close the door, observe the Door OK LED is illuminated. _____

- 139. Press the Start Search button, observe that the LED on the button box illuminates when the button is pressed. _____
 - 140. Exit the room and close the door, press the Complete Search button and observe that the audible warning sounds and the strobe flashes for a minimum of 15 seconds. _____
 - 141. Observe that the LED on the Complete Search button box illuminates when the button is pressed. _____
 - 142. Observe that the Interlocked sign is illuminated. _____
 - 143. Observe that the control room FEL Room secured LED is out. _____
 - 144. Observe that at the end of the warning period the FEL Room Secured LED in the FEL Room and in the control room is illuminated. _____
 - 145. Open the door and observe the following:
 - The Interlocked sign goes out. _____
 - The control room FEL Room secured LED goes out. _____
 - The secured LED in the FEL Room goes out. _____
 - The LED on the Complete Search button box goes out. _____
 - A beeping audible alarm in the FEL Room for 5 seconds. _____
 - A beeping audible alarm in the control room for 5 seconds. _____
- While the Vestibule to FEL door or the FEL to EH door is open the Door OK LED is out. _____
- 146. Secure the FEL room and then press an emergency stop, observe that the interlocked sign goes out and the Secured LED goes out in the FEL room. _____
 - 147. Reset the emergency stop button and attempt to secure the room, observe the room does not secure. _____
 - 148. Reset the SOR latch and attempt to secure the room, observe the room does secure. _____

- 149. Press the Interlock Off button and open the door, observe that the beeping audible alarm does not sound and the Interlocked sign goes out. _____
- 150. Secure the FEL room, press the passage button for the FEL to Vestibule door, open the door and, Observe that the time from when the button is pressed to the time that the interlock drops out is no more than 20 seconds. _____
- 151. Secure the FEL room, press the passage button for the FEL to EH door, open the door and, Observe that the time from when the button is pressed to the time that the interlock drops out is no more than 20 seconds. _____
- 151a. Secure the area and before the timeout open the door, close the door and press the complete search button, observe that the interlock does not make. _____

1.3.5.7 Experimental Hall (EH)

- 152. Enter the EH and observe that the SOR Latch LED is illuminated, if not, reset with the SOR key. Check that the control room emergency stop LED for the EH Room is out. _____
- 153. Press the emergency stop located outside the EH Room. Observe that the SOR Latch LED is out and the ES light is illuminated in the EH Room. _____
- 154. Observe that the control room emergency stop LED for the EH Room is illuminated. _____
- 155. Reset the Emergency Stop button and observe that the ES LED in the EH Room goes out. _____
- 156. Observe that the SOR Latch LED and the control room Emergency stop LED is illuminated _____
- 157. Reset the SOR Latch with the key and observe that the control room Emergency stop LED is out and the SOR LED in the EH Room is illuminated. _____
- 158. Repeat steps 153 to 157 for each Emergency Stop button inside the EH Room. _____
- 158a. Press the start search button and observe that the LED stays on no more than 60 sec. _____
- 158b. Press the complete search and observe that the interlock does not make. _____

- 159. Enter the EH Room and close the door, observe the Door OK LED is illuminated. _____
- 160. Press the Start Search button, observe that the LED on the button box illuminates when the button is pressed. _____
- 161. Press the CS-1 button, observe that the LED on the button box illuminates when the button is pressed. _____
- 162. Press the CS-2 button, observe that the LED on the button box illuminates when the button is pressed. _____
- 163. Press the CS-3 button, observe that the LED on the button box illuminates when the button is pressed. _____
- 164. Exit the room and close the door, press the Complete Search button and observe that the audible warning sounds and the strobe flashes for a minimum of 15 seconds. _____
- 165. Observe that the LED on the Complete Search button box illuminates when the button is pressed. _____
- 166. Observe that the Interlocked sign is illuminated. _____
- 167. Observe that the control room EH Room secured LED is out. _____
- 168. Observe that at the end of the warning period the EH Room Secured LED in the EH Room and in the control room are illuminated. _____
- 169. Open the door and observe the following:
 - The Interlocked sign goes out. _____
 - The control room EH Room secured LED goes out. _____
 - The secured LED in the EH Room goes out. _____
 - The LED on the Complete Search button box goes out. _____
 - A beeping audible alarm in the EH Room for 5 seconds. _____
 - A beeping audible alarm in the control room for 5 seconds. _____

While the EH South Door or the FEL to EH door is open the Door OK LED is out.

- 170. Secure the EH room and then press an emergency stop, observe that the interlocked sign goes out and the Secured LED goes out in the EH room. _____
- 171. Reset the emergency stop button and attempt to secure the room, observe the room does not secure. _____
- 172. Reset the SOR latch and attempt to secure the room, observe the room does secure. _____
- 173. Press the Interlock Off button and open the door, observe that the beeping audible alarm does not sound and the Interlocked sign goes out. _____
- 174. Perform a search sequence of the EH but do not press the Start Search button but press all other check stations as normal. Observe that the system does not interlock. _____
- 175. Perform a search sequence of the EH but do not press the CS-1 button but press all other check stations as normal. Observe that the system does not interlock. _____
- 176. Perform a search sequence of the EH but do not press the CS-2 button but press all other check stations as normal. Observe that the system does not interlock. _____
- 177. Perform a search sequence of the EH but do not press the CS-3 button but press all other check stations as normal. Observe that the system does not interlock. _____
- 178. Secure the FEL room and the EH. Observe that the BL1, BL2 and BL3 shutter ready indicators does not light until the EH warning sound stops. _____

Remove the test cable and re-connect the shutter cable.

- 179. Secure the EH, press the passage button for the FEL to EH door, open the door and, Observe that the time from when the button is pressed to the time that the interlock drops out is no more than 20 seconds. _____
- 180. Secure the EH, press the passage button for the EH South Door, open the door and, Observe that the time from when the button is pressed to the time that the interlock drops out is no more than 20 seconds. _____

181. Secure the area and before the timeout open the door, close the door and press the complete search button, observe that the interlock does not make. _____

182. Secure the EH and FEL rooms, press the EH to FEL passage button and observe that the BL1,2,3 shutters, YAG to FEL shutter and CO₂ main to FEL shutters close. _____

Inform the control room operator or person in charge of operations that the test is complete and request that this test be noted in the operations log book.

Time complete _____